

Anaerobic Flora and Colonization with Vancomycin-Resistant Enterococci

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VANCOMYCIN; ENTEROCOCCUS; DRUG RESISTANCE

The normal bacterial intestinal flora provides an important host defense by inhibiting colonization with pathogenic microorganisms. We have provided evidence that the strictly anaerobic component of the normal flora plays a critical role in limiting intestinal overgrowth of vancomycin-resistant enterococci (VRE), an important nosocomial pathogen. Using an anaerobic continuous-flow culture model of human intestinal flora, we have demonstrated that competition for nutrients is an important factor that limits growth of VRE. One objective of this proposal will be to identify nutrients present in the intestinal tract that stimulate growth of VRE, and to identify strict anaerobes that effectively compete with VRE for those nutrients in continuous-flow culture. A second objective will be to examine factors that might contribute to persistence of VRE colonization, including delayed recovery of normal anaerobic flora in hospitalized patients and adherence of VRE to the lining of the intestinal tract or to the wall of the continuous-flow culture vessel. A final objective will be to examine whether restoration of normal anaerobic flora will inhibit VRE colonization in mice. We propose that a limited number of anaerobes that are chosen based upon their ability to effectively compete with VRE for nutrients will inhibit colonization.